

ABSTRACT OF THE DISCLOSURE

A liquid fuel cell device includes a liquid fuel cell body including a fuel electrode, an oxidizer electrode and an electrolyte layer between the fuel and oxidizer electrodes, and a liquid fuel supply system supplying a liquid fuel to the fuel electrode. The fuel supply system includes a first tank configured to contain a concentration-adjusted liquid fuel and supply the concentration-adjusted liquid fuel to the fuel electrode, and a second tank configured to contain a high-concentration liquid fuel and supply the high-concentration liquid fuel to the first tank. The first tank includes a first internal liquid transfer device configured to transfer the concentration-adjusted liquid fuel to the fuel electrode. The cell device further includes a first external driving device provided outside the first tank and configured to drive the first internal liquid transfer device. The first external driving device is physically separated from the first internal liquid transfer device.